

TITLE: **PHOTOCHEMICAL PROCESS** FOR PREPARING BETA-THIOLACTONES

US PAT NO: 3,626,015 L6: 41 of 42
TITLE: NOVEL PHOTOCHEMICAL REACTIONS OF TRANS-.alpha.-SANTALATE AND
NOVEL COMPOUNDS RESULTING THEREFROM
22 OCT 92 09:42:33 U.S. Patent & Trademark Office P0025

US PAT NO: 3,616,372 L6: 42 of 42
TITLE: PHOTOCHEMICAL SYNTHESIS OF CIS- AND TRANS-OCIMENE

=> d ab 16 30

US PAT NO: 4,097,349 [IMAGE AVAILABLE] L6: 30 of 42

ABSTRACT:

Sulfur dioxide (SO.sub.2) and oxides of nitrogen (NO.sub.x) are effectively and economically removed from a gaseous combustion products stream by photochemical conversion of the gaseous SO.sub.2 and NO.sub.x components into particulates (aerosols and mists). The reactive hydrocarbon (RHC) and oxygen deficient fossil fuel combustion products can be converted into a highly photochemically reactive RHC, SO.sub.2, NO.sub.x (NO, NO.sub.2), O.sub.2, H.sub.2 O gaseous mixture by the introduction of sufficient quantities of a reactive hydrocarbon, such as an olefin, and oxygen or oxygen containing air. The

22 OCT 92 09:43:06 U.S. Patent & Trademark Office P0026

US PAT NO: 4,097,349 [IMAGE AVAILABLE] L6: 30 of 42
reactant mixture is then irradiated with electromagnetic waves of the 1,500A to 7,500A band of the spectrum, which irradiation is followed by ammonia injection, if desired, to promote particulate formation. The particulate nitrogenous, sulfurous ("nitrates" and "sulfates") and other particulate compounds are removed from the stream by a conventional particulate control system and the products and byproducts can be separated and converted into valuable products of economic value, such as organic and inorganic acids, fertilizers and the like.

=> d acc ccls 4097349

US PAT NO: 4,097,349 [IMAGE AVAILABLE] ANS: 1
US-CL-CURRENT: 204/157.3; 60/274; 204/157.46, 157.49

02:00T092 09:44:06 U.S. Patent & Trademark Office P0027
=> d ab 32 16

US PAT NO: 4,045,316 [IMAGE AVAILABLE] L6: 32 of 42

— ABSTRACT:

A process for photochemically treating **hydrocarbons** and halogenated or partially oxidized **hydrocarbons** in a gaseous or vaporous mixture, by exposing the mixture to ultraviolet light, preferably of relatively short wavelength in the presence of oxygen or its allotropes, in order to oxidize the **hydrocarbons** to very simple compounds.

=> d acc ccls 4045316

US PAT NO: 4,045,316 [IMAGE AVAILABLE] ANS: 1
US-CL-CURRENT: 204/157.3, 158.2; 422/186.3

02:06T192 09:45:21 U.S. Patent & Trademark Office P0028
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US PAT NO:	4,357,404	L6: 26 of 42	
TITLE:	Photochemical epoxidation		
22 OCT 92 09:41:52	U.S. Patent & Trademark Office		P0021
US PAT NO:	4,357,404	L6: 26 of 42	
TITLE:	Process for forming a lithographic printing plate by electrophotography		
US PAT NO:	4,272,610	L6: 27 of 42	
TITLE:	Photopolymer process using photo oxidizable component		
US PAT NO:	4,152,230 [IMAGE AVAILABLE]	L6: 28 of 42	
TITLE:	Photooxidation process		
US PAT NO:	4,105,839	L6: 29 of 42	
TITLE:	Method for polymerizing ethylenically unsaturated monomers in order to eliminate polymer deposition		
US PAT NO:	4,097,349 [IMAGE AVAILABLE]	L6: 30 of 42	
22 OCT 92 09:42:02	U.S. Patent & Trademark Office		P0022
US PAT NO:	4,097,349 [IMAGE AVAILABLE]	L6: 30 of 42	
TITLE:	Photochemical Process for fossil fuel combustion products recovery and utilization		
US PAT NO:	4,082,552	L6: 31 of 42	
TITLE:	Process of optically printing highly conductive character utilizing a medium containing a halogenated hydrocarbon photoactivator and a tetrathiafulvalene or a related compound thereof		
US PAT NO:	4,045,316 [IMAGE AVAILABLE]	L6: 32 of 42	
TITLE:	Photochemical Process for decontaminating gaseous or vaporous streams		
US PAT NO:	4,036,648	L6: 33 of 42	
22 OCT 92 09:42:13	U.S. Patent & Trademark Office		P0023
US PAT NO:	4,036,648	L6: 33 of 42	
TITLE:	Highly conductive printing medium containing a halogenated hydrocarbon photoactivator and a tetrathiafulvalene or a related compound thereof		
US PAT NO:	3,987,150	L6: 34 of 42	
TITLE:	Production of ammonium nitrate		
US PAT NO:	3,984,296 [IMAGE AVAILABLE]	L6: 35 of 42	
TITLE:	System and process for controlling air pollution		
US PAT NO:	3,937,956 [IMAGE AVAILABLE]	L6: 36 of 42	
TITLE:	Isotope separation process		
US PAT NO:	3,689,568	L6: 37 of 42	
22 OCT 92 09:42:22	U.S. Patent & Trademark Office		P0024
US PAT NO:	3,689,568	L6: 37 of 42	
TITLE:	PREPARATION OF PRIMARY MERCAPTANS		
US PAT NO:	3,674,665 [IMAGE AVAILABLE]	L6: 38 of 42	
TITLE:	PHOTOSYNTHESIS OF CYCLOPROPYL COMPOUNDS FROM ALLYLIC COMPOUNDS		
US PAT NO:	3,674,663	L6: 39 of 42	
TITLE:	PHOTOCHEMICAL PROCESS FOR PREPARING A BICYCLIC LACTONE		
US PAT NO:	3,661,743 [IMAGE AVAILABLE]	L6: 40 of 42	

TITLE:	Near-infrared sensitive phthalocyanine-polymer compositions	
US PAT NO:	4,751,344	L6: 10 of 42
22 OCT 92 09:41:13	U.S. Patent & Trademark Office	P0017
US PAT NO:	4,751,344	L6: 10 of 42
TITLE:	Catalytic synthesis of olefins from paraffins	
US PAT NO:	4,735,747	L6: 11 of 42
TITLE:	Process and apparatus for the photochemical sulphochlorination of gaseous alkanes	
US PAT NO:	4,670,621	L6: 12 of 42
TITLE:	Catalytic synthesis of olefins from paraffins	
US PAT NO:	4,666,824	L6: 13 of 42
TITLE:	Photopolymer process and composition employing a photooxidizable component capable of forming endoperoxides	
US PAT NO:	4,643,812	L6: 14 of 42
22 OCT 92 09:41:23	U.S. Patent & Trademark Office	P0018
US PAT NO:	4,643,812	L6: 14 of 42
TITLE:	Photochemical Process for the hydrobromination of olefinic double bonds	
US PAT NO:	4,643,810	L6: 15 of 42
TITLE:	Photochemical Process to eliminate lead in gasoline with a high octane number	
US PAT NO:	4,609,444	L6: 16 of 42
TITLE:	Photochemical reactions for commercial synthesis	
US PAT NO:	4,563,413	L6: 17 of 42
TITLE:	Photopolymer process and composition employing a photooxidizable component capable of forming endoperoxides	
22 OCT 92 09:41:33	U.S. Patent & Trademark Office	P0019
US PAT NO:	4,545,880	L6: 18 of 42
TITLE:	Photochemical Process for preparing camptothecin derivatives	
US PAT NO:	4,545,207	L6: 19 of 42
TITLE:	Solar energy system	
US PAT NO:	4,525,255	L6: 20 of 42
TITLE:	Photochemical reactions for commercial synthesis	
US PAT NO:	4,515,667 [IMAGE AVAILABLE]	L6: 21 of 42
TITLE:	Novel catalysts and processes for the photochemical decarboxylation of alpha-hydroxy carboxylic acids	
US PAT NO:	4,495,041 [IMAGE AVAILABLE]	L6: 22 of 42
22 OCT 92 09:41:43	U.S. Patent & Trademark Office	P0020
US PAT NO:	4,495,041 [IMAGE AVAILABLE]	L6: 22 of 42
TITLE:	Photochemical Process using shape-selective photoassisted heterogenous catalyst compositions	
US PAT NO:	4,456,512 [IMAGE AVAILABLE]	L6: 23 of 42
TITLE:	Photochemical reactor and method	
US PAT NO:	4,396,703	L6: 24 of 42
TITLE:	Retouching agent for lithographic printing plate	

L3
L4 78 S L1 AND 204*2/CCLS
L5 0 S PHOTOCHEMICAL CONVERSION OF HYDROCARBONS
L6 42 S PHOTOCHEMICAL(W) PROCESS AND HYDROCARBONS
L7 23 S L6 AND 204*2/CCLS
22 OCT 92 09:39:18 U.S. Patent & Trademark Office

P0014

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d ti 16 1-42

US PAT NO: 5,124,944 [IMAGE AVAILABLE] L6: 1 of 42
TITLE: Optical storage medium and storage process

US PAT NO: 5,068,040 [IMAGE AVAILABLE] L6: 2 of 42
22 OCT 92 09:40:55 U.S. Patent & Trademark Office

P0015

US PAT NO: 5,068,040 [IMAGE AVAILABLE] L6: 2 of 42
TITLE: Dense phase gas **Photochemical Process** for substrate treatment

US PAT NO: 5,061,604 [IMAGE AVAILABLE] L6: 3 of 42
TITLE: Negative crystalline photoresists for UV photoimaging

US PAT NO: 5,037,524 [IMAGE AVAILABLE] L6: 4 of 42
TITLE: Apparatus for treating liquids with high-intensity pressure waves

US PAT NO: 5,026,484 [IMAGE AVAILABLE] L6: 5 of 42
TITLE: Continuous flow method for processing liquids using high-energy discharge

22 OCT 92 09:41:04 U.S. Patent & Trademark Office P0016

US PAT NO: 4,937,292 [IMAGE AVAILABLE] L6: 6 of 42
TITLE: Photosensitizer

US PAT NO: 4,927,972 [IMAGE AVAILABLE] L6: 7 of 42
TITLE: Catalytic process for the production of mercaptans from thioethers

US PAT NO: 4,827,031 L6: 8 of 42
TITLE: Process for preparing amines from olefins with ammonium halide catalysts

US PAT NO: 4,816,386 [IMAGE AVAILABLE] L6: 9 of 42

US PAT NO:	4,515,667 [IMAGE AVAILABLE]	L7: 10 of 23	
22 OCT 92 09:38:33	U.S. Patent & Trademark Office		P0010
US PAT NO:	4,515,667 [IMAGE AVAILABLE]	L7: 10 of 23	
TITLE:	Novel catalysts and processes for the photochemical decarboxylation of alpha-hydroxy carboxylic acids		
US PAT NO:	4,495,041 [IMAGE AVAILABLE]	L7: 11 of 23	
TITLE:	Photochemical Process using shape-selective photoassisted heterogenous catalyst compositions		
US PAT NO:	4,456,512 [IMAGE AVAILABLE]	L7: 12 of 23	
TITLE:	Photochemical reactor and method		
US PAT NO:	4,383,904 [IMAGE AVAILABLE]	L7: 13 of 23	
TITLE:	Photochemical epoxidation		
US PAT NO:	4,152,230 [IMAGE AVAILABLE]	L7: 14 of 23	
22 OCT 92 09:38:43	U.S. Patent & Trademark Office		P0011
US PAT NO:	4,152,230 [IMAGE AVAILABLE]	L7: 14 of 23	
TITLE:	Photooxidation process		
US PAT NO:	4,097,349 [IMAGE AVAILABLE]	L7: 15 of 23	
TITLE:	Photochemical Process for fossil fuel combustion products recovery and utilization		
US PAT NO:	4,045,316 [IMAGE AVAILABLE]	L7: 16 of 23	
TITLE:	Photochemical Process for decontaminating gaseous or vaporous streams		
US PAT NO:	3,984,296 [IMAGE AVAILABLE]	L7: 17 of 23	
TITLE:	System and process for controlling air pollution		
US PAT NO:	3,937,956 [IMAGE AVAILABLE]	L7: 18 of 23	
22 OCT 92 09:38:53	U.S. Patent & Trademark Office		P0012
US PAT NO:	3,937,956 [IMAGE AVAILABLE]	L7: 18 of 23	
TITLE:	Isotope separation process		
US PAT NO:	3,674,665 [IMAGE AVAILABLE]	L7: 19 of 23	
TITLE:	PHOTOSYNTHESIS OF CYCLOPROPYL COMPOUNDS FROM ALLYLIC COMPOUNDS		
US PAT NO:	3,674,663	L7: 20 of 23	
TITLE:	PHOTOCHEMICAL PROCESS FOR PREPARING A BICYCLIC LACTONE		
US PAT NO:	3,661,743 [IMAGE AVAILABLE]	L7: 21 of 23	
TITLE:	PHOTOCHEMICAL PROCESS FOR PREPARING BETA-THIOLACTONES		
US PAT NO:	3,626,015	L7: 22 of 23	
TITLE:	NOVEL PHOTOCHEMICAL REACTIONS OF TRANS-.alpha.-SANTALATE AND NOVEL COMPOUNDS RESULTING THEREFROM		
22 OCT 92 09:39:04	U.S. Patent & Trademark Office		P0013
US PAT NO:	3,616,372	L7: 23 of 23	
TITLE:	PHOTOCHEMICAL SYNTHESIS OF CIS- AND TRANS-OCIMENE		

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(FILE 'USPAT' ENTERED AT 09:31:26 ON 22 OCT 92)

SET PAGELNGTH 19

SET LINELENGTH 78

L1 210 S PHOTOCHEMICAL(W) PROCESS

L2 41038 S (L1 OR METHANE)

L3 (C 11 AND METHANE)

d ti 13 1-6

US PAT NO: 5,068,040 [IMAGE AVAILABLE] L3: 1 of 6
22 OCT 92 09:34:02 U.S. Patent & Trademark Office P0004

US PAT NO: 5,068,040 [IMAGE AVAILABLE] L3: 1 of 6
TITLE: Dense phase gas **Photochemical Process** for substrate
treatment

US PAT NO: 4,735,747 L3: 2 of 6
TITLE: Process and apparatus for the photochemical sulphochlorination
of gaseous alkanes

US PAT NO: 4,590,091 L3: 3 of 6
TITLE: **Photochemical Process** for substrate surface
preparation

US PAT NO: 4,495,041 [IMAGE AVAILABLE] L3: 4 of 6
TITLE: **Photochemical Process** using shape-selective
photoassisted heterogenous catalyst compositions
22 OCT 92 09:34:12 U.S. Patent & Trademark Office P0005

US PAT NO: 4,213,836 [IMAGE AVAILABLE] L3: 5 of 6
TITLE: Laser-induced separation of hydrogen isotopes in the liquid
phase

US PAT NO: 4,097,349 [IMAGE AVAILABLE] L3: 6 of 6
TITLE: **Photochemical Process** for fossil fuel combustion
products recovery and utilization

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(FILE 'USPAT' ENTERED AT 09:31:26 ON 22 OCT 92)

SET PAGELength 19

SET LINELENGTH 78

1 1 010 8 PHOTOCHEMICAL (M) 8800000

L2 41038 S (L1 OR METHANE)

22 OCT 92 09:34:32 U.S. Patent & Trademark Office

P0006

L3 6 S L1 AND METHANE

=>

d ti 17 1-23

US PAT NO: 5,037,524 [IMAGE AVAILABLE] L7: 1 of 23
TITLE: Apparatus for treating liquids with high-intensity pressure
waves

22 OCT 92 09:38:14 U.S. Patent & Trademark Office P0008

US PAT NO: 5,026,484 [IMAGE AVAILABLE] L7: 2 of 23
TITLE: Continuous flow method for processing liquids using
high-energy discharge

US PAT NO: 4,937,292 [IMAGE AVAILABLE] L7: 3 of 23
TITLE: Photosensitizer

US PAT NO: 4,735,747 L7: 4 of 23
TITLE: Process and apparatus for the photochemical sulphochlorination
of gaseous alkanes

US PAT NO: 4,643,812 L7: 5 of 23
TITLE: **Photochemical Process** for the hydrobromination of
olefinic double bonds

22 OCT 92 09:38:23 U.S. Patent & Trademark Office P0009

US PAT NO: 4,643,810 L7: 6 of 23
TITLE: **Photochemical Process** to eliminate lead in gasoline
with a high octane number

US PAT NO: 4,609,444 L7: 7 of 23
TITLE: Photochemical reactions for commercial synthesis

US PAT NO: 4,545,880 L7: 8 of 23
TITLE: **Photochemical Process** for preparing camptothecin
derivatives

US PAT NO: 4,525,255 L7: 9 of 23
TITLE: Photochemical reactions for commercial synthesis

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